

A REVISION OF THE GENERA
PHLAUROCENTRUM KARSCH, *BUETTNERIA*
KARSCH AND *LEIODONTOCERCUS* CHOPARD
(ORTHOPTERA : TETTIGONIIDAE)

BY

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Pp. 1-17 : 32 Text-figures

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A REVISION OF THE GENERA *PHLAUROCENTRUM* KARSCH, *BUETTNERIA* KARSCH AND *LEIODONTOCERCUS* CHOPARD (ORTHOPTERA: TETTIGONIIDAE)

By D. R. RAGGE

CONTENTS

	<i>Page</i>
INTRODUCTION	3
ACKNOWLEDGMENTS	4
MATERIAL	4
KEY TO THE GENERA	4
<i>PHLAUROCENTRUM</i> KARSCH	4
<i>BUETTNERIA</i> KARSCH	11
<i>LEIODONTOCERCUS</i> CHOPARD	13
<i>MYLLOCENTRUM</i> GEN. N.	15
REFERENCES	17

SYNOPSIS

The genera *Phlaurocentrum* Karsch, *Buettneria* Karsch and *Leiodontocercus* Chopard are fully revised. A new genus is described, based on a species previously included in *Phlaurocentrum* Karsch. One generic and one specific synonym are newly established, and five new species are described.

INTRODUCTION

THE genera *Phlaurocentrum* Karsch, *Buettneria* Karsch and *Leiodontocercus* Chopard form a fairly homogeneous group of Phaneropterinae, very similar in all important respects and doubtless of monophyletic origin. The group may be characterized by the presence of a well-developed fore coxal spine, a vertex with a compressed fastigium, and fore tibial tympana that are conchate internally and open externally; the females have a hood-like tenth abdominal tergite, which completely conceals the supra-anal plate, and a greatly reduced, smooth-edged ovipositor.

The genus *Phlaurocentrum* Karsch has hitherto contained three species. One of these, *Ph. stigmatosum* Karsch, was found to be generically quite distinct from the remaining two (and from the three new species described here); this species forms the basis of the new genus *Myllocentrum* gen. n., which links the group of genera mentioned above to *Enochletica* Karsch (see p. 16).

Throughout this paper "Congo Republic" refers to the former Belgian colony. The author's usual conventions are observed (see Ragge, 1957, p. 124) and the wing-vein nomenclature used is that of Ragge (1955).

ACKNOWLEDGMENTS

I must extend my most sincere thanks to the following specialists who have been kind enough to send me type specimens and other material from their respective museums :—

Mr. P. Basilewsky, Dr. M. Beier, Mr. R. H. Carcasson, Dr. L. Chopard, Dr. K. K. Günther, and Mr. D. C. Rentz.

I am particularly grateful to Dr. N. D. Jago, who has most kindly sent me specimens collected by him personally.

I also wish to thank Mrs. P. M. Newman for her practical assistance.

MATERIAL

In addition to the collection of the *Phlaurocentrum* group in the British Museum (Natural History), material was lent by the sources listed below, through the courtesy of the specialists mentioned above (the abbreviations used where the material is listed in detail are inserted in parenthesis).

Musée Royal de l'Afrique Centrale, Tervuren (Mus. Af. Cent.) ; Naturhistorisches Museum, Vienna (Nat. Mus. Vienna) ; Coryndon Museum, Nairobi (Coryndon Mus.) ; Muséum National d'Histoire Naturelle, Paris (Mus. Hist. Nat. Paris) ; Zoologisches Museum of the Humboldt-Universität, Berlin (Zool. Mus. Berlin) ; California Academy of Sciences, San Francisco (Cal. Acad. Sci.).

KEY TO THE GENERA

1. Fastigium of the vertex relatively broad, as in Text-fig. 2. Hind femora less than half the length of the fore wings. Ovipositor upcurved, as in Text-fig. 5
MYLLOCENTRUM gen. n. (p. 15)
- Fastigium of the vertex relatively narrow, as in Text-fig. 1. Hind femora more than half the length of the fore wings. Ovipositor not upcurved, as in Text-figs. 3 and 4 2
2. Fore wings long and narrow, as in Text-fig. 12. Hind femora more than three-quarters of the length of the fore wings **LEIODONTOCERCUS** Chopard (p. 13)
- Fore wings relatively shorter and broader, as in Text-figs. 6–11. Hind femora less than three-quarters of the length of the fore wings 3
3. Costal area of the fore wings abruptly constricted about halfway along their length by an emargination of the anterior wing-margin, as in Text-fig. 11. Ovipositor as in Text-fig. 4 **BUETTNERIA** Karsch (p. 11)
- Costal area of the fore wings not constricted in this way, as in Text-figs. 6–10. Ovipositor as in Text-fig. 3, or very similar **PHLAUROCENTRUM** Karsch (p. 4)

PHLAUROCENTRUM Karsch, 1888

Phlaurocentrum Karsch, 1888, *Berl. ent. Z.* **32** : 445. Type-species, by monotypy, *Phlaurocentrum latevittatum* Karsch, 1888.

DIAGNOSIS. ♂♀. Fastigium of vertex compressed, not or hardly sloping to frons, sulcate above. Fore wings of moderate breadth, obliquely truncate apically, as in Text-figs. 6–10. Male subgenital plate with pair of styles.

DISCUSSION. This genus differs from *Buettneria* Karsch and *Leiodontocercus* Chopard in the shape of the vertex, in the presence of styles on the subgenital plate of the male, and in the structure of the ovipositor (cf. Text-figs. 3 and 4).

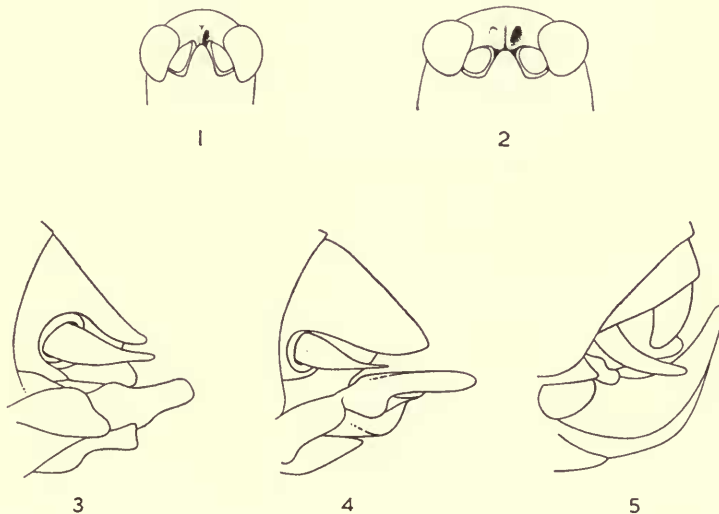
The species described under the name *Phlaurocentrum stigmatum* Karsch, 1896 differs in several important respects from *Ph. latevittatum* Karsch and the remaining four species included in the genus in this revision; these differences make it impossible to retain this species in *Phlaurocentrum* Karsch, and I am erecting for it the genus *Myloccentrum* gen. n. (described on p. 15).

DISTRIBUTION. This genus occurs throughout the forested parts of Wallace's West African Sub-region, and also extends into Uganda.

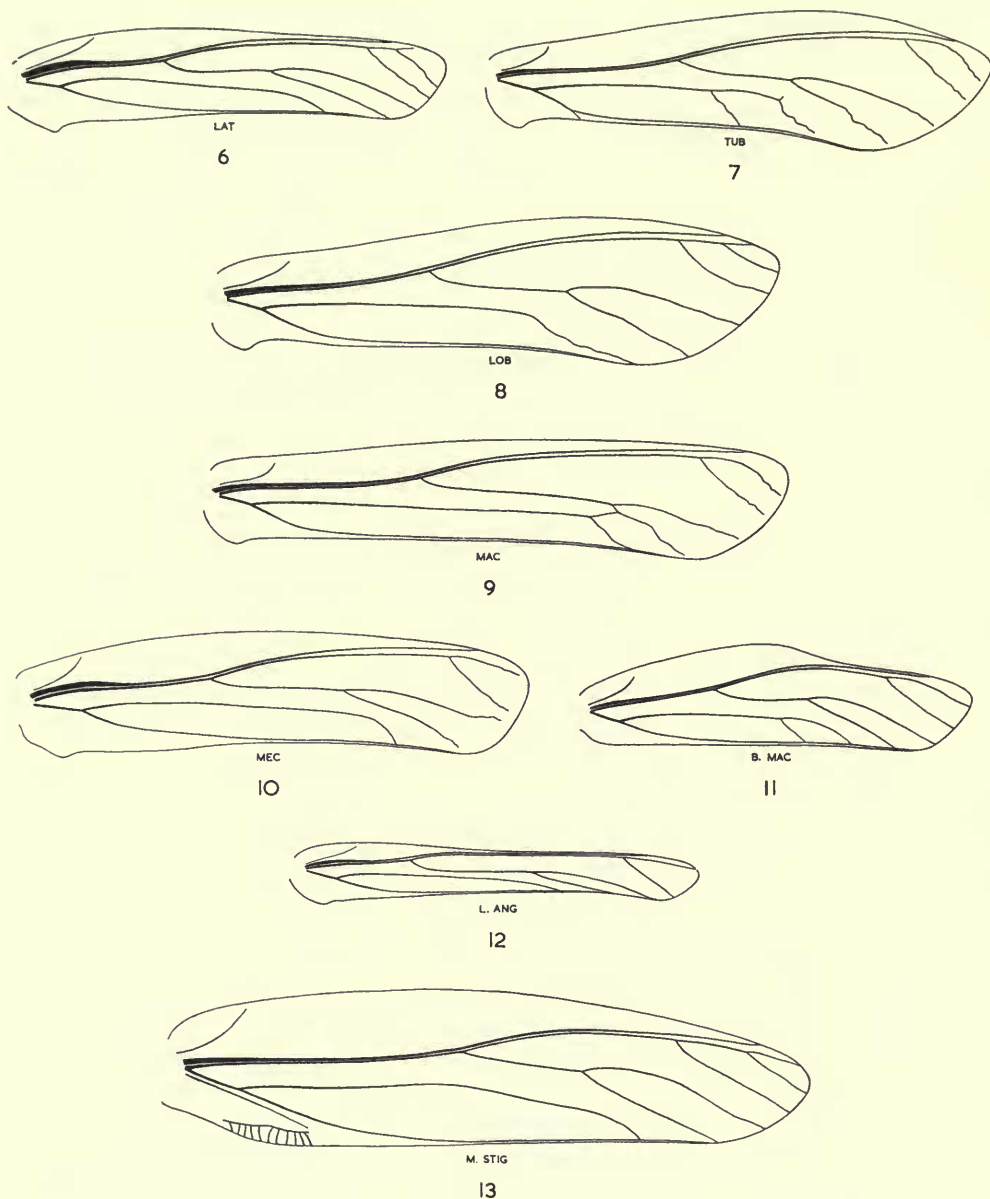
KEY TO THE SPECIES OF *Phlaurocentrum*

The features of the male subgenital plate, on which this key has to be almost entirely based, cannot, unfortunately, be expressed in words, and reference must be made to Text-figs. 14–18. Although the females lack any striking diagnostic characters it may be possible to make a tentative identification of specimens of this sex not associated with males by reference to Text-figs. 28–31.

- | | |
|---|--|
| 1. Tenth abdominal tergite as in Text-fig. 17 | <i>Ph. maculatum</i> sp. n. (p. 10) |
| –. Tenth abdominal tergite not as in Text-fig. 17 | 2 |
| 2. Tenth abdominal tergite as in Text-fig. 18. Upper part of the lateral lobes of the pronotum black, contrasting with the pale pronotal disc | <i>Ph. mecopodoides</i> Karsch (p. 11) |
| –. Tenth abdominal tergite not as in Text-fig. 18. Pronotum not coloured as above | 3 |
| 3. Tenth abdominal tergite as in Text-fig. 16. | <i>Ph. lobatum</i> sp. n. (p. 9) |
| –. Tenth abdominal tergite as in Text-figs. 14 or 15 | 4 |
| 4. Tenth abdominal tergite as in Text-fig. 14 | <i>Ph. latevittatum</i> Karsch (p. 7) |
| –. Tenth abdominal tergite as in Text-fig. 15 | <i>Ph. tuberosum</i> sp. n. (p. 8) |



FIGS. 1–5. The *Phlaurocentrum* group. 1–2. Anterior view of the dorsal part of the head of (1) *Ph. latevittatum* Karsch; (2) *Myloccentrum stigmatum* (Karsch). 3–5. Lateral view of the ovipositor of (3) *Ph. tuberosum* sp. n.; (4) *Buettneria maculiceps* Karsch (*Leiodontocercus* Chopard is very similar); (5) *M. stigmatum* (Karsch).

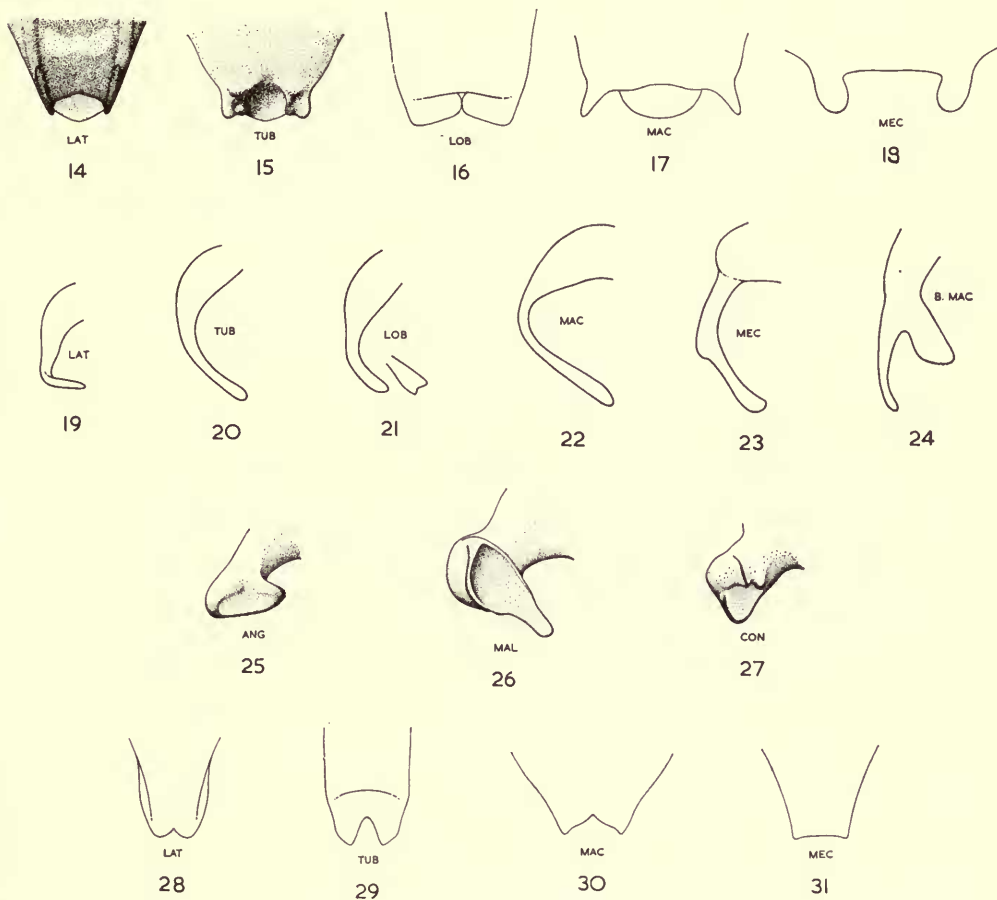


FIGS. 6-13. The right fore wing (male in all cases except *Myllocentrum stigmatosum* (Karsch)) of (6) *Phlaurocentrum latevittatum* Karsch; (7) *Ph. tuberosum* sp. n.; (8) *Ph. lobatum* sp. n.; (9) *Ph. maculatum* sp. n.; (10) *Ph. mecopodoides* Karsch; (11) *Buettneria maculiceps* Karsch; (12) *Leiodontocercus angustipennis* Chopard; (13) *Myllocentrum stigmatosum* (Karsch) (female).

I. *Phlaurocentrum latevittatum* Karsch, 1888

Phlaurocentrum latevittatum Karsch, 1888, *Berl. ent. Z.* **32** : 446. Holotype ♀, CONGO REPUBLIC : Kuako to Kimpoko (Büttner) (probably lost—see below).

DIAGNOSIS. ♂. Tenth abdominal tergite as in Text-fig. 14. Cerci as in Text-fig. 19. ♀. Subgenital plate as in Text-fig. 28.



FIGS. 14-31. The *Phlaurocentrum* group. 14-18. Dorsal view of the male tenth abdominal tergite of (14) *Ph. latevittatum* Karsch ; (15) *Ph. tuberosum* sp. n.; (16) *Ph. lobatum* sp. n.; (17) *Ph. maculatum* sp. n.; (18) *Ph. mecopodoides* Karsch. 19-27. Dorsal view of the left male cercus of (19) *Ph. latevittatum* Karsch ; (20) *Ph. tuberosum* sp. n.; (21) *Ph. lobatum* sp. n. (with ventrolateral view of the tip) ; (22) *Ph. maculatum* sp. n.; (23) *Ph. mecopodoides* Karsch ; (24) *Buettneria maculiceps* Karsch ; (25) *Leiodontocercus angustipennis* Chopard ; (26) *L. malleus* sp. n.; (27) *L. condylus* sp. n. 28-31. Ventral view of the female subgenital plate of (28) *Ph. latevittatum* Karsch ; (29) *Ph. tuberosum* sp. n.; (30) *Ph. maculatum* sp. n.; (31) *Ph. mecopodoides* Karsch.

MEASUREMENTS

	Males	Female
Total length	(4) : 37·8–42·8, mean 40·28	43·1
Median length of pronotum	(3) : 3·9–4·6, mean 4·36	4·3
Length of hind femur	(4) : 21·4–24·6, mean 22·82	23·2
Length of fore wing	(4) : 28·4–32·6, mean 30·98	33·1

DISCUSSION. Males of this species may be easily recognized by the tenth abdominal tergite and cerci. The rounded lobes of the subgenital plate of the only female of this species that I have examined are probably also characteristic.

Through the kindness of Dr. K. K. Günther of the Zoologisches Museum, Berlin, a prolonged search has been made for the holotype of *Ph. latevittatum* Karsch, but no female specimen bearing this name has been found. There is a female specimen in spirit in that museum which has the correct locality data and which is labelled "*Phlaurocentrum fasciatum*", a name that has never appeared in print ; this specimen appears to belong to the genus *Phlaurocentrum* Karsch, but as it is completely discoloured and in very poor condition it would serve no useful purpose to regard it as the holotype of the present species. Karsch (1891, p. 321) subsequently described the male sex of *Ph. latevittatum* Karsch from a specimen from Barombi (near Cameroons Mt.) ; Dr. Günther has kindly lent me this specimen (which bears the number 5358) and I have used it to fix the identity of this species.

MATERIAL EXAMINED

CAMEROUN : Barombi, 1 ♂ (*Preuss*) (Zool. Mus. Berlin) ; Mundame, 1 ♂ (*Rhode*) (Nat. Mus. Vienna) ; Lolodorf, 1 ♂ (*Conradt*) (Zool. Mus. Berlin) ; CONGO REPUBLIC : Eala, xi. 1935, 1 ♂ (*Ghesquière*) (Mus. Af. Cent.) ; 21 miles N.E. of Lusambe, 11.viii. 1957, 1 ♀ (*Ross & Leech*) (Cal. Acad. Sci.).

DISTRIBUTION. Known only from Cameroun and the Congo Republic.

2. *Phlaurocentrum tuberosum* sp. n.

DIAGNOSIS. ♂. Tenth abdominal tergite as in Text-fig. 15. Cerci as in Text-fig. 20. ♀. Subgenital plate as in Text-fig. 29.

DESCRIPTION. ♂. Fastigium of vertex compressed, sulcate above.

Pronotum without lateral carinae ; lateral lobes usually slightly deeper than long. Fore tibiae with about 5–7 external ventral spurs. Mid tibiae with about 9–10 external ventral spurs. Hind femora with about 4–7 external spines. Hind tibiae with about 17–21 external dorsal spines. Venation of fore wings as in Text-fig. 7.

Tenth abdominal tergite as in Text-fig. 15. Cerci as in Text-fig. 20.

General coloration brown, with variable amount of mottling on legs and wings and with darker brown stripe along top of head and pronotum. Sides of head, lateral lobes of pronotum, abdominal tergites and much of legs with darker brown spots. Tibial spurs and spines and femoral spines darkened. Stridulatory organ whitish or with whitish markings.

♀. As male except for wings and genitalia. Subgenital plate as in Text-fig. 29, poorly sclerotized in distal part.

MEASUREMENTS

	Males	Females
Total length	(18): 40.5-44.5, mean 42.62	(8): 39.9-44.4, mean 41.74
Median length of pronotum	(18): 4.1-4.7, mean 4.45	(10): 4.3-4.9, mean 4.51
Length of hind femur	(15): 21.1-24.7, mean 23.37	(9): 22.0-26.0, mean 24.13
Length of fore wing	(20): 31.4-34.6, mean 32.89	(8): 30.4-36.0, mean 32.09

VARIATION. The tibial spurs and spines and the femoral spines vary in number. The intensity of the dark stripe along the top of the head and pronotum varies somewhat. The distal part of the subgenital plate of the female is poorly sclerotized, and the appearance of the lobes varies quite widely in dried specimens.

DISCUSSION. The tenth abdominal tergite of the males of this species enables them to be easily recognized. The females differ in coloration from *Ph. maculatum* sp. n. and *Ph. mecopodoides* Karsch, and may be distinguished from *Ph. latevittatum* Karsch by the shape of the subgenital plate.

MATERIAL EXAMINED

Holotype. UGANDA: Mabira Forest, 3.vii.1913, ♂ (*Gowdey*).

Paratypes. UGANDA: Entebbe, 10-13.vii.1914, 1 ♂, 1 ♀ (*Gowdey*); Entebbe, 12-16.v.1914, 1 ♂, 1 ♀ (*Gowdey*); Entebbe, 10.x.1913, 1 ♀ (—); Entebbe, v.1952, 1 ♂ (*Pinhey*) (Coryndon Mus.); Kampala, 17.xi.1915, 1 ♂ (—); Kampala, 1-10.xii.1915, 1 ♂ (*Gowdey*); Kivuvu, 19.viii.1913, 1 ♂ (*Gowdey*); Kisaru, at light, 22.vi.1933, 1 ♂ (*Johnston*); Kawanda, 8.v.1942, 1 ♀ (*Taylor*); Kisube [?], 2.viii.1913, 1 ♂ (*Gowdey*); Bwamba Forest, iv.1951, 1 ♂ (*Pinhey*) (Coryndon Mus.); Bwamba (H.), vi.1948, 1 ♂ (*van Someren*); Mwera ["Urw. Moera"], 1910, 1 ♂ (*Grauer*) (Nat. Mus. Vienna); CONGO REPUBLIC: Kamogobe (SudMasisi), 8.iii.1936, 1 ♀ (*Lippens*) (Mus. Af. Cent.); Bafwarikubi, 12.ix.1912, 1 ♀ (*Christy*) (Mus. Af. Cent.); Tshuapa, Flandria, 19.ix.1941, 1 ♀ (*Hulstaert*) (Mus. Af. Cent.); Bambesa, 26.iv.1937, 1 ♂ (*Vrydagh*) (Mus. Af. Cent.); Bambesa, ix.1933, 1 ♂ (*Brédo*) (Mus. Af. Cent.); Région des Lacs, 1 ♀ (*Sagona*) (Mus. Af. Cent.); Mongbwalu (Kilo), 1937, 1 ♂ (*Harford-Jordens*) (Mus. Af. Cent.); Kivu, Kavumu to Kabunga (Mingazi), ix.1951, 1 ♂ (*Bomans*) (Mus. Af. Cent.); Kilo, 1 ♂ (*Abetti*) (Mus. Af. Cent.); Mwilambongo (Idlofa), 1947, 1 ♀ (*Rév. Soeur Imelda*) (Mus. Af. Cent.); Uele-Itimbiri, Dingila, 29.ix.1932, 1 ♂ (*Vrydagh*) (Mus. Af. Cent.); Kibali-Ituri, Geti, 1934, 1 ♀ (*Scops*) (Mus. Af. Cent.); Ituri, Medje, 1.iv.1914, 1 ♀ (*Christy*) (Mus. Af. Cent.); Luhoho, R. Bunyakiri, 1,100 m., 6.ix.1957, 1 ♂ (*Ross & Leech*) (Cal. Acad. Sci.); Beni Forest, ix.1947, 1 ♀ (*Gedys*) (Coryndon Mus.); CAMEROUN: Batouri distr., 3° 45' N., 13° 45' E., 750 m., 1.v-6.vi.1935, 1 ♂ (*Merfield*).

In the British Museum (Natural History) unless otherwise stated.

DISTRIBUTION. The known range of this species extends across central Africa from Cameroun to Uganda.

3. *Phlaurocentrum lobatum* sp. n.

DIAGNOSIS. ♂. Tenth abdominal tergite as in Text-fig. 16. Cerci as in Text-fig. 21 with slight indentation at apex.

♀ unknown.

DESCRIPTION. ♂. Fastigium of vertex compressed, sulcate above.

Pronotum without lateral carinae, or with slight tendency towards their formation in posterior half; lateral lobes about as deep as long. Fore tibiae with about 6 external ventral spurs. Mid tibiae with about 9-11 external ventral spurs. Hind femora with about 5-7 external spines. Hind tibiae with about 20-25 external dorsal spines. Venation of fore wings as in Text-fig. 8.

Tenth abdominal tergite as in Text-fig. 16. Cerci as in Text-fig. 21, with slight indentation at apex.

General coloration brown, with variable amount of mottling on legs and wings and with darker brown stripe along top of head and pronotum. Sides of head, lateral lobes of pronotum, abdominal tergites and much of legs with darker brown spots. Tibial spurs and spines and femoral spines darkened. Stridulatory organ whitish.

♀ unknown.

MEASUREMENTS

Males

Total length	(3) : 46.5-47.6, mean 47.20
Median length of pronotum	(1) : 5.0
Length of hind femur	(2) : 25.8-26.6, mean 26.20
Length of fore wing	(3) : 35.8-37.9, mean 36.83

VARIATION. The tibial spurs and spines and the femoral spines vary a little in number.

DISCUSSION. Males of this species may be easily recognized by their genitalia.

MATERIAL EXAMINED

Holotype. CONGO REPUBLIC: Eala, 9-18.v.1935, ♂ (*Ghesquière*) (Mus. Af. Cent.).

Paratypes. CONGO REPUBLIC: Oshwe, xii.1913, 2 ♂ (*Maes*) (1 in Mus. Af. Cent., 1 in British Museum (Nat. Hist.)).

DISTRIBUTION. Known only from the Congo Basin.

4. *Phlaurocentrum maculatum* sp. n.

DIAGNOSIS. ♂. Tenth abdominal tergite as in Text-fig. 17. Cerci as in Text-fig. 22. Conspicuously mottled in colour.

♀. Subgenital plate as in Text-fig. 30. Conspicuously mottled in colour.

DESCRIPTION. ♂. Fastigium of vertex compressed, sulcate above.

Pronotum without lateral carinae; lateral lobes slightly deeper than long. Fore tibiae with about 6 external ventral spurs. Mid tibiae with about 10-11 external ventral spurs. Hind femora with about 8-9 external spines. Hind tibiae with about 16-22 external dorsal spines. Venation of fore wings as in Text-fig. 9.

Tenth abdominal tergite as in Text-fig. 17. Cerci as in Text-fig. 22.

General coloration yellowish brown or olive brown, conspicuously mottled and spotted with darker brown. Tibial spurs and spines and femoral spines darkened. Stridulatory organ whitish.

♀. As male except for wings and genitalia. Subgenital plate as in Text-fig. 30, poorly sclerotized in distal part.

MEASUREMENTS

	Male	Females
Total length	49.1	(2) : 41.9-42.9, mean 42.40
Median length of pronotum	5.0	(2) : 4.6-4.6, mean 4.60
Length of hind femur	25.6	(1) : 24.5
Length of fore wing	38.0	(2) : 33.2-33.5, mean 33.35

VARIATION. The tibial spurs and spines and the femoral spines vary in number.

DISCUSSION. This species may be recognized by the male genitalia and the conspicuously mottled coloration.

MATERIAL EXAMINED

Holotype. CONGO REPUBLIC: Mawambi-Irumu, 1910, ♂ (*Grauer*) (Nat. Mus. Vienna).

Paratypes. CONGO REPUBLIC: Kivu, Kalehe, Makwe, ii.1950, 1 ♀ (*Bomans*) (Mus. Af. Cent.); Mongbwalu (Kilo), 1938, 1 ♀ (*Scheitz*) (Mus. Af. Cent.).

DISTRIBUTION. This species is so far known only from the mountainous parts of Ituri and Kivu.

5. *Phlaurocentrum mecopodoides* Karsch, 1891

Phlaurocentrum mecopodoides Karsch, 1891, *Berl. ent. Z.* 36: 321. Holotype ♂, CAMEROUN: Barombi (Zool. Mus. Berlin.).

DIAGNOSIS. ♂. Tenth abdominal tergite as in Text-fig. 18. Cerci as in Text-fig. 23. Upper part of lateral lobes of pronotum black.

♀. Subgenital plate as in Text-fig. 31. Upper part of lateral lobes of pronotum black.

MEASUREMENTS

	Males	Female
Total length	(2): 42.5-42.6, mean 42.55	40.0
Median length of pronotum	(2): 4.9-5.1, mean 5.00	5.2
Length of hind femur	(2): 24.5-24.8, mean 24.65	25.1
Length of fore wing	(2): 33.8-34.2, mean 34.00	32.6

DISCUSSION. This species may be recognized at a glance by the blackening of the upper part of the lateral pronotal lobes; the male genitalia and the subgenital plate of the female are also characteristic.

MATERIAL EXAMINED

Holotype. CAMEROUN: Barombi, ♂ (*Preuss*) (Zool. Mus. Berlin).

CAMEROUN: Mundame, 1 ♂ (*Conradt*) (Zool. Mus. Berlin); CONGO REPUBLIC: Eala, 1 ♀, ix.1930 (*Staner*) (Mus. Af. Cent.).

DISTRIBUTION. Known only from Cameroun and the Congo Basin.

BUETTNERIA Karsch, 1888

Büttneria Karsch, 1888, *Berl. ent. Z.* 32: 444. Type-species, by monotypy, *Büttneria maculiceps* Karsch, 1888.

Stenacropteryx Karsch, 1896, *Stettin. ent. Ztg* 57: 339. Type-species, by monotypy, *Stenacropteryx eburneiguttata* Karsch, 1896 **syn. n.**

DIAGNOSIS. ♂♀. Fastigium of vertex strongly compressed, sloping to frons, sulcate above. Fore wings broad, obliquely truncate apically, as in Text-fig. 11. Male subgenital plate without styles.

DISCUSSION. This monotypic genus differs from *Phlaurocentrum* Karsch in the shape of the vertex and in lacking styles on the subgenital plate of the male. Its much broader wings provide the only important difference from *Leiodontocercus* Chopard, of which it is clearly a close relative.

The holotypes of *B. maculiceps* Karsch and *Stenacropteryx eburneiguttata* Karsch were found to be conspecific; *Stenacropteryx* Karsch thus becomes a synonym of the earlier name *Buettneria* Karsch.

DISTRIBUTION. Known only from Cameroun and the Congo Republic.

Buettneria maculiceps Karsch, 1888

Buettneria maculiceps Karsch, 1888, *Berl. ent. Z.* **32** : 445. Holotype ♀, CONGO REPUBLIC : Kuako to Kimpoko (Zool. Mus. Berlin—see below).

Stenacropteryx eburneiguttata Karsch, 1896, *Stettin. ent. Ztg* **57** : 339. Holotype ♂, CAMEROUN : Lolodorf (Zool. Mus. Berlin) **syn. n.**

DIAGNOSIS. ♂. Cerci as in Text-fig. 24.

♀. Ovipositor as in Text-fig. 4.

MEASUREMENTS

	Males	Females
Total length	(2) : 30·8–36·3, mean 33·55	(2) : 41·2–42·2, mean 41·70
Median length of pronotum	(2) : 3·7–3·8, mean 3·75	(2) : 4·1–4·2, mean 4·15
Length of hind femur	(3) : 17·7–18·4, mean 18·00	(1) : 20·7
Length of fore wing	(3) : 25·4–26·3, mean 25·77	(2) : 30·4–30·4, mean 30·40

DISCUSSION. As mentioned when discussing the genus, this species may be distinguished from *Leiodontocercus* Chopard by the much broader fore wings and the characteristically shaped male cerci.

Dr. K. K. Günther of the Zoologisches Museum, Berlin, who has kindly made a search for the holotype of *B. maculiceps* Karsch, has been unable to find a specimen bearing this name. There is, however, a female specimen in spirit in that museum which has the correct locality data and which is labelled "*Büttneria guttulata*", a name that has never appeared in print; this specimen undoubtedly belongs to the present species and is almost certainly the holotype.

The holotype of *Stenacropteryx eburneiguttata* Karsch was found to belong to *B. maculiceps* Karsch.

MATERIAL EXAMINED

Holotype. CONGO REPUBLIC : Kuako to Kimpoko, ♀ (*Büttner*) (Zool. Mus. Berlin—see above).

CAMEROUN : Lolodorf, 1 ♂ (*Conradt*) (Zool. Mus. Berlin) (Holotype of *Stenacropteryx eburneiguttata* Karsch); Mundame, 2 ♂, 3 ♀ (*Rhode*) (1 ♂ and 1 ♀ in British Museum (Nat. Hist.); remainder in Nat. Mus. Vienna); CONGO REPUBLIC : Eala, 1 ♂, 1–7.v.1935 (*Ghesquière*) (Mus. Af. Cent.); Eala, 1 ♀, viii.1936 (*Ghesquière*) (Mus. Af. Cent.).

DISTRIBUTION. As given for the genus.

***LEIODONTOCERCUS* Chopard, 1954**

Leiodontocercus Chopard, 1954, La réserve naturelle intégrale du Mont Nimba. Fasc. II. Pt. III. Orthoptères Ensifères. *Mém. Inst. franç. Afr. noire* 40 (2) : 83. Type-species, by original designation, *Leiodontocercus angustipennis* Chopard, 1954.

DIAGNOSIS. ♂♀. Fastigium of vertex strongly compressed, sloping to frons, sulcate above. Fore wings narrow, obliquely truncate apically, as in Text-fig. 12. Male sub-genital plate without styles.

DISCUSSION. This genus is a close relative of *Buettneria* Karsch, the much narrower fore wings providing the only important difference. It may be distinguished from *Phlaurocentrum* Karsch by the shape of the vertex and the lack of styles on the sub-genital plate of the male.

Leiodontocercus Chopard was described from a single male collected from the Nimba Mountains in Guinea. The material available for this revision includes twelve further specimens of the genus, from Sierra Leone, Ghana, Nigeria, Cameroun and the Congo Republic. In all non-sexual features these specimens resemble each other very closely, both structurally and in coloration. Three of them are females, from Ghana, Nigeria and Cameroun; they have a greatly reduced ovipositor of the type found in *Buettneria* Karsch and are taxonomically indistinguishable from each other. Most of the nine males, however, show wide divergences in the structure of the cerci, and have proved to be very difficult to segregate taxonomically. A male from Sierra Leone agrees well with the holotype of *L. angustipennis* Chopard. Three males from Ghana, while resembling each other closely in cercal structure, differ markedly in this respect from *L. angustipennis* Chopard, and I have used them (and the Ghanaian female) as the basis for *L. malleus* sp. n. One of the Congolese males again shows a very different cercal structure and forms the holotype of a third species, *L. condylus* sp. n. The remaining four males, one from Nigeria and three from the Congo Republic, though again all showing unique features in cercal structure, do not differ quite so markedly, and it would be unwise to base further new species on them (and the two female specimens associated with them) until more material is available. It is quite possible that many, perhaps all, of these differences are the result of geographical variation, and that it will later be found that *L. angustipennis* Chopard is a polytypic species distributed throughout West Africa.

DISTRIBUTION. The known range of this genus occupies most of Wallace's West African Sub-region.

KEY TO THE SPECIES OF *Leiodontocercus*

As mentioned above, the shape of the male cerci, which does not lend itself to verbal description, seems to provide the only character for separating the members of this genus. Although their identification is thus possible only by reference to Text-figs. 25–27, I have nevertheless thought it better to express this in the form of a dichotomous key than to give no key at all.

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|------------------------------------|-----------|--|
| 1. Cerci as in Text-fig. 25 | | <i>L. angustipennis</i> Chopard (p. 14) |
| –. Cerci as in Text-figs. 26 or 27 | | 2 |
| 2. Cerci as in Text-fig. 26 | | <i>L. malleus</i> sp. n. (p. 14) |
| –. Cerci as in Text-fig. 27 | | <i>L. condylus</i> sp. n. (p. 15) |

1. *Leiodontocercus angustipennis* Chopard, 1954

Leiodontocercus angustipennis Chopard, 1954, La réserve naturelle intégrale du Mont Nimba. Fasc. II. Pt. III. Orthoptères Ensifères. *Mém. Inst. franç. Afr. noire* 40 (2): 84. Holotype ♂, GUINEA: Nimba (Mus. Hist. Nat. Paris).

DIAGNOSIS. ♂. Cerci as in Text-fig. 25.

♀ unknown.

MEASUREMENTS

	Males
Total length	(2): 38.5–40.0, mean 39.25
Median length of pronotum	(2): 3.2–3.5, mean 3.35
Length of hind femur	(2): 21.1–21.6, mean 21.35
Length of fore wing	(2): 25.8–27.1, mean 26.45

DISCUSSION. The shape of the male cerci enables this species to be distinguished from the two species described below.

MATERIAL EXAMINED

Holotype. GUINEA: Nimba, ♂, vii–xii.1951 (*Lamotte & Roy*) (Mus. Hist. Nat. Paris.).

SIERRA LEONE: Freetown, Mt. Aureol, 1 ♂, i.1956 (*Phipps*) (British Museum (Nat. Hist.)).

DISTRIBUTION. Known only from the Nimba Mountains and Sierra Leone.

2. *Leiodontocercus malleus* sp. n.

DIAGNOSIS. ♂. Cerci as in Text-fig. 26.

♀. No known diagnostic character.

DESCRIPTION. ♂. Fastigium of vertex strongly compressed, concave in profile, sulcate above.

Pronotum without lateral carinae; lateral lobes deeper than long. Fore tibiae with 4 external ventral spurs. Mid tibiae with about 6–7 external ventral spurs. Hind femora with about 5–9 external spines. Hind tibiae with about 20–22 external dorsal spines. Venation of fore wings similar to Text-fig. 12.

Tenth abdominal tergite enlarged, emarginate posteriorly. Cerci as in Text-fig. 26.

General coloration green. Head with black mark behind each eye, adjoining two corresponding black marks on pronotum; hind margin of pronotal disc with black markings. Antennae brown with black and whitish bands; basal two segments green. Tympana marked with black. Hind femora with two brown bands near apex; hind tibiae with two whitish bands near base, alternating with brown bands. Tarsi with brown and whitish markings. Tibial spurs darkened; femoral and tibial spines darkened towards tip. Area R_1 and parts of area R_s of fore wings mottled with brown. Stridulatory organ with black, brown and whitish markings. Exposed part of hind wings brown with green markings. Tip of abdomen brown.

♀. As male except for genitalia and fore wings. Ovipositor similar to Text-fig. 4.

MEASUREMENTS

	Males	Female
Total length	(3): 35.3–38.9, mean 37.30	40.4
Median length of pronotum	(3): 3.2–3.4, mean 3.32	3.5
Length of hind femur	(3): 19.1–21.8, mean 20.80	22.0
Length of fore wing	(3): 23.4–26.4, mean 25.10	27.6

VARIATION. The tibial spurs and spines and the femoral spines vary slightly in number.

DISCUSSION. Males of this species may be readily recognized by the shape of the cerci. The female specimen from Ghana has been ascribed to the present species on geographical grounds ; this sex is not likely to have any diagnostic characters.

MATERIAL EXAMINED

Holotype. GHANA : Western Region, nr. Wiawso, 3 miles N.W. of Tano Lodge, ♂, 14.x.1960 (*Jago*).

Paratypes. GHANA : Tafo, at light, 1 ♂, 19.iv.1957 (*Eastop*) ; Tafo, at light, 1 ♂, 20.iv.1957 (*Eastop*) ; Ashanti, Kumasi College of Technology, 1 ♀, 23.x.1960 (*Jago*).

All in the British Museum (Natural History).

DISTRIBUTION. Known only from Ghana.

3. *Leiodontocercus condylus* sp. n.

DIAGNOSIS. ♂. Cerci as in Text-fig. 27.

♀ unknown.

DESCRIPTION. ♂. Fastigium of vertex strongly compressed, concave in profile, sulcate above.

Pronotum without lateral carinae ; lateral lobes deeper than long. Fore and mid legs missing from holotype except for left fore femur. Hind femora with about 7 ventral spines. Hind tibiae with about 21 external dorsal spines. Venation of fore wings similar to Text-fig. 12.

Tenth abdominal tergite enlarged, emarginate posteriorly. Cerci as in Text-fig. 27.

Coloration as in *L. malleus* sp. n. (p. 14).

♀ unknown.

MEASUREMENTS

	Male
Total length	36.3
Median length of pronotum	3.4
Length of hind femur	20.1
Length of fore wing	24.9

DISCUSSION. This species may be recognized by the shape of the male cerci.

MATERIAL EXAMINED

Holotype. CONGO REPUBLIC : Kibali-Ituri, Yindi, ♂, v.1949 (*Bertrand*) (Mus. Af. Cent.).

MYLLOCENTRUM gen. n.

Type-species : *Phlaurocentrum stigmatum* Karsch, 1896.

DIAGNOSIS. ♀. Fastigium of vertex moderately compressed, sloping steeply to frons, sulcate above, as in Text-fig. 2. Fore wings of moderate breadth, shaped as in Text-fig. 13. Tenth abdominal tergite unmodified. Ovipositor very much reduced, shaped as in Text-fig. 5.

♂ unknown.

DESCRIPTION. ♀. Fastigium of vertex moderately compressed, sloping steeply to frons, sulcate above, as in Text-fig. 2.

Pronotum punctulate, without lateral carinae, though with slight tendency towards their formation. Fore coxal spine present, but not very well-developed. Internal tympanum of fore tibiae conchate, external tympanum open. Fore wings of moderate breadth, shaped as in Text-fig. 13.

Tenth abdominal tergite unmodified. Ovipositor very much reduced, shaped as in Text-fig. 5. ♂ unknown.

DISCUSSION. This genus is not a very close relative of the other three genera covered by this revision, though sharing with them the greatly reduced ovipositor. The fastigium of the vertex is very much less compressed than is the case in these genera, the legs are relatively shorter, and the facies is broader and more robust ; in addition, the fore wings are hardly truncate at the apex and the female tenth abdominal tergite is unmodified. In these respects *Myloccentrum* gen. n. approaches *Enochletica* Karsch, in which, however, the vertex is not at all compressed, the legs are relatively even shorter, and the ovipositor, though small, is of normal shape and crenulate at the tip.

DISTRIBUTION. Known only from Nigeria and Cameroun.

Myloccentrum stigmatosum (Karsch, 1896)

Phlauroccentrum stigmatosum Karsch, 1896, *Stettin ent. Ztg* 57 : 336. Holotype ♀, CAMEROUN : Lolodorf (Zool. Mus. Berlin).

DIAGNOSIS. ♀. Fore wings as in Text-fig. 13. Ovipositor as in Text-fig. 5. ♂ unknown.

MEASUREMENTS

Females

Total length	(1) : 53·8
Median length of pronotum	(2) : 5·1–5·2, mean 5·15
Length of hind femur	(1) : 18·2
Length of fore wing	(2) : 41·1–41·3, mean 41·20

DISCUSSION. The black spots on the fore wings of this species are quite distinctive (see Text-fig. 32) ; there are also black markings on the vertex, the sides of the pronotal disc, and along the dorsal surface of the hind tibiae.

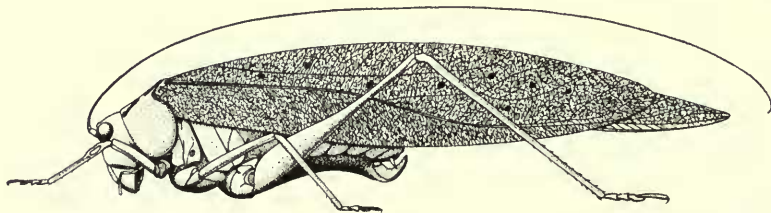


FIG. 32. *Myloccentrum stigmatosum* (Karsch), female.

The small teeth (probably stridulatory in function) on certain veinlets in the anal area of the right female fore wing, which are shown by many Phaneropterinae, are particularly conspicuous in this species; the veinlets concerned are unusually prominent and are shown in Text-fig. 13.

MATERIAL EXAMINED

Holotype. CAMEROUN : Lolodorf, ♀ (*Conradi*) (Zool. Mus. Berlin).

NIGERIA : Oban distr., 1 ♀ (*Talbot*) (British Museum (Nat. Hist.)).

DISTRIBUTION. As given for the genus.

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